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10/509,164	09/27/2004	Derek W. Mackney	3076R-01	5093

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Lubrizol Corporation
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EXAMINER

MCAVOY, ELLEN M

ART UNIT	PAPER NUMBER
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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,164	Applicant(s) MACKNEY ET AL.	
	Examiner Ellen M. McAvoy	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5 and 7-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 8 and 10-14 are still rejected under 35 U.S.C. 103(a) as being unpatentable over Forde et al (6,136,051) alone, or in combination with Pudelski et al (6,412,468).

Applicants' arguments filed 12 May 2008 have been fully considered but they are not persuasive. As previously set forth, Forde et al ["Forde"] disclose a fuel composition that has good control of combustion chamber deposits which comprises a major portion of hydrocarbons boiling in the gasoline range; at least 1200 ppm by weight of a detergent selected from hydrocarbyl-substituted amine or polyamine; and at least 2400 ppm by weight of a mineral carrier fluid. The hydrocarbyl-substituted amines and polyamines contain a hydrocarbyl group having an average molecular weight in the range of from 450 to 10,000, preferably 1,000 to 5,000, and includes polyisobutylene. See column 2, lines 20-59. Forde allows for the addition of other additives to the gasoline composition including other detergents and dispersants including succinimides. See column 5, lines 40-48. The examiner is of the position that the detergent additive of Forde meets the limitations of the detergent additive of the claims when it is component (A), a succinimide or component (B), hydrocarbyl-substituted amines. Applicants' open-ended claim language "comprising" allows for the addition of other additives to the composition such as the mineral carrier fluid of Forde. Applicants' invention differs in dependent claims 11-14 by requiring that the engine have an exhaust treatment device; that the

lubricating oil circulated within the engine have one of the properties of low phosphorus, low sulfur and low sulfated ash content; and that the fuel in the fuel composition have a sulfur content below about 80 ppm by weight. However, as evidenced by Pudelski et al [“Pudelski”], such characteristics are well-known in the art. Pudelski teaches that in a method of operating an internal combustion engine equipped with exhaust gas aftertreatment devices, a normally liquid or gaseous fuel having a low sulfur content is known to function effectively with a low-phosphorus or phosphorus-free lubricating oil composition which is used to lubricate the engine. See columns 1-2. Gasoline fuels with a sulfur content of less than about 10 ppm are taught in column 6, lines 32-45. Pudelski also teaches that operating the internal combustion engine provides an increase in time intervals required between oil changes which meets the limitations of dependent claims 13 and 14. Thus having the prior art references before the inventors at the time the invention was made it would have been obvious to have followed the teachings of the art and to have used the gasoline fuel composition of Forde with the low phosphorus content lubricating oil composition and low sulfur gasoline fuel combination of Pudelski if the known imparted properties were so desired.

In response, applicants have amended claim 1 to include the limitations of dependent claim 6 which was not rejected over Forde, either alone or in combination with Pudelski. Applicants therefore request that the rejection be withdrawn. This is not deemed to be persuasive because dependent claim 6 further limited the Mannich reaction product, component (C). Dependent claim 6 was not included in the above rejection because the applied references do not teach a Mannich reaction product as a detergent. Independent claim 1 is drawn to a method of operating an internal combustion engine comprising introducing a nitrogen-containing

detergent composition comprising (A), (B), (C), (D), or (E), mixtures thereof, into a combustion chamber of the engine during the operation of the engine. The independent claim does NOT require the addition of all the detergents, just one detergent or a mixture of detergents. Thus, the examiner maintains the position that the detergent additive of Forde meets the limitations of the detergent additive of the claims when it is component (A), a succinimide or component (B), hydrocarbyl-substituted amines.

Claim Rejections - 35 USC § 103

Claims 1-3, 8 and 10-14 are still rejected under 35 U.S.C. 103(a) as being unpatentable over Malfer et al (6,800,103) alone or in combination with Pace et al [WO 02/18521 A2].

Applicants' arguments filed 12 May 2008 have been fully considered but they are not persuasive. As previously set forth, Malfer et al ["Malfer"] discloses a detergent/dispersant additive for use in spark-ignition fuels such as gasoline comprising Mannich condensation products that are effective in controlling intake valve deposits and minimizing valve sticking in internal combustion engines. The Mannich condensation products are formed by the reaction of (i) at least one hydrocarbyl-substituted hydroxyaromatic compound, (ii) at least one secondary amine, and (iii) at least one aldehyde. See columns 1-2. Malfer allows for the addition of other additives to the gasoline composition including antioxidants, and other detergents/dispersants. See column 8, line 66 to column 9, line 12. The examiner is of the position that the Mannich products of Malfer meet the limitations of the detergent additive of the claims when it is component (C), a Mannich reaction product of a hydrocarbyl-substituted hydroxy-containing aromatic compound, an aldehyde and an amine. Applicants' invention differs in dependent

claims 11-14 by requiring that the engine have an exhaust treatment device; that the lubricating oil circulated within the engine have one of the properties of low phosphorus, low sulfur and low sulfated ash content; and that the fuel in the fuel composition have a sulfur content below about 80 ppm by weight. However, as evidenced by Pace et al [“Pace”], such characteristics are well-known in the art. Pace discloses using a low phosphorus content lubricating oil composition in combination with a low sulfur gasoline fuel in order to reduce exhaust emissions without adversely affecting fuel economy. Pace teaches that the lubricating oil composition has a phosphorus content of no more than 0.05% by weight, and that the gasoline fuel has a sulfur content of less than 10 ppm by weight. See pages 1-2. Thus having the prior art references before the inventors at the time the invention was made it would have been obvious to have followed the teachings of the art and to have used the gasoline fuel composition of Malfer with the low phosphorus content lubricating oil composition and low sulfur gasoline fuel combination of Pace in order to reduce exhaust emissions without adversely affecting fuel economy.

In response applicants have amended claim 1 to include the limitations of claim 4 which was not rejected over Malfer, either alone or in combination with Pace. Applicants therefore request that the rejection be withdrawn. This is not deemed to be persuasive because dependent claim 4 further limited the detergent component (A). Dependent claim 4 was not included in the above rejection because the applied references do not teach detergent component (A) which is the reaction product of a hydrocarbyl-substituted acylating agent and an amine. Independent claim 1 is drawn to a method of operating an internal combustion engine comprising introducing a nitrogen-containing detergent composition comprising (A), (B), (C), (D), or (E), mixtures thereof, into a combustion chamber of the engine during the operation of the engine. The

independent claim does NOT require the addition of all the detergents, just one detergent or a mixture of detergents. Thus, the examiner maintains the position that the Mannich products of Malfer meet the limitations of the detergent additive of the claims when it is component (C), a Mannich reaction product of a hydrocarbyl-substituted hydroxy-containing aromatic compound, an aldehyde and an amine.

Claim Rejections - 35 USC § 103

Claims 1-3 and 7-14 are still rejected under 35 U.S.C. 103(a) as being unpatentable over Daly et al (6,224,642) alone or in combination with Pace et al [WO 02/18521 A2].

Applicants' arguments filed 12 May 2008 have been fully considered but they are not persuasive. As previously set forth, Daly et al ["Daly"] disclose an additive composition for fuels, such as diesel fuel and gasoline, which is effective in reducing engine wear. The additive composition comprises (A) an ether amine compound represented by formula (I) in column 1, lines 52-54, and (B) a compound selected from fatty acid; fatty acid amide; fatty acid ester; and an amide, imide or ester derived from a hydrocarbyl substituted succinic acid or anhydride; and mixtures thereof. The examiner is of the position that the additive composition of Daly meets the limitations of the nitrogen-containing detergent of the claims when it is component (D) a high molecular weight polyetheramine. Daly also allows for the addition of other additives to the fuel composition such as antioxidants, corrosion inhibitors, etc. See column 7, lines 50-62. Applicants' invention differs in dependent claims 11-14 by requiring that the engine have an exhaust treatment device; that the lubricating oil circulated within the engine have one of the properties of low phosphorus, low sulfur and low sulfated ash content; and that the fuel in the

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fuel composition have a sulfur content below about 80 ppm by weight. However, as evidenced by Pace et al [“Pace”], such characteristics are well-known in the art. Pace discloses using a low phosphorus content lubricating oil composition in combination with a low sulfur gasoline fuel in order to reduce exhaust emissions without adversely affecting fuel economy. Pace teaches that the lubricating oil composition has a phosphorus content of no more than 0.05% by weight, and that the gasoline fuel has a sulfur content of less than 10 ppm by weight. See pages 1-2. Thus having the prior art references before the inventors at the time the invention was made it would have been obvious to have followed the teachings of the art and to have used the gasoline fuel composition of Daly with the low phosphorus content lubricating oil composition and low sulfur gasoline fuel combination of Pace in order to reduce exhaust emissions without adversely affecting fuel economy.

In response applicants have amended claim 1 to include the limitations of claims 4 and 6 which were not rejected over Daly, either alone or in combination with Pace. Applicants therefore request that the rejection be withdrawn. This is not deemed to be persuasive because dependent claim 4 further limited the detergent component (A) and dependent claim 6 further limited Mannich reaction product which is detergent component (C). As previously set forth, independent claim 1 is drawn to a method of operating an internal combustion engine comprising introducing a nitrogen-containing detergent composition comprising (A), (B), (C), (D), or (E), mixtures thereof, into a combustion chamber of the engine during the operation of the engine. The independent claim does NOT require the addition of all the detergents, just one detergent or a mixture of detergents. Thus, the examiner maintains the position that the additive composition

of Daly meets the limitations of the nitrogen-containing detergent of the claims when it is component (D) a high molecular weight polyetheramine.

THIS ACTION IS MADE FINAL. Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/

Ellen M McAvoy
Primary Examiner
Art Unit 1797

EMcAvoy
July 29, 2008